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ATC Methodology Technical Workshop

May 5, 2005

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Transmission Business Line

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ATC Workshop Agenda

- Summarize TBL's proposal to correctly model the Canadian Entitlement
- Summarize TBL's proposal to the modify the ATC Methodology Margin (AMM)
- Discuss Customer Concerns and Comments
  - Discuss sensitivity analyses and results from modeling different assumptions in the base case such as loss of DSI load, generation outages and changes to federal dispatch patterns
- Wrap-Up and Next Steps

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ATC Methodology

Recommended Adjustments

- Proposal 1: Update Canadian Entitlement modeling assumption
- Proposal 2: Revise ATC calculation by replacing Transmission Reliability Margin (TRM) with ATC Methodology Margin (AMM)
- Proposal 3: Remove certain non-firm flows from the base case
  - Improve consistency between regional load assumptions and generation dispatch assumptions (load/resource balancing)

Proposal 1
Canadian Entitlement Return

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- Proposal: For the May, June, and August planning base cases, TBL proposes to correct the modeling of the Canadian Entitlement Return(CER)
  TBL proposes calculating ATC under two approaches:
  - Approach 1: Retain dispatch of CER with the addition of a load (1,270 MW) at the Canadian/US border
  - Approach 2: Remove CER dispatch in the planning base case
- The final ATC that TBL would post: Lesser of Option 1 ATC or Option 2 ATC for each of the monitored flowgates

Proposal 1 Rationale

- Need to provide the firm transmission for the CER – year around.
- Currently, CER is modeled as an export to California in the May, June, and August planning base cases (modeled as firm delivery on a non-firm path)
- TBL considers that modeling a load at the Canadian/US border is:
  - Establishing ATC on certain flowgates that is too high based on unreliability of netting against imports from Canada
- Removal of the CER from the Federal NT generation dispatch
  - Establishing ATC on certain flowgates (WOM, WOS) that is too high based on assumption that CER is not dispatched
- Conservative Approach: Posting the lesser of ATC as calculated by each method for each monitored flowgate

Proposal 2 ATC Methodology Margin (AMM)

Changes and Modifications

- Proposal 2(a): Replace the Transmission Reliability Margin (TRM) with the term ATC Methodology Margin (AMM)
- Proposal 2(b): Modify AMM for WOM, WOS, and NOH flowgates
  - 10% of the difference between Contract Accounting ATC and Planning ATC (currently, the difference is 25%)
- Remaining flowgates: Retain AMM plus any additional fixed margin consistent with current application of ATC methodology

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Proposal 2 Rationale

- TBL now has several years of experience with the ATC Methodology, the 25% margin is conservative
- The existing AMM on the N JD flowgate (200 MW + 25 % AMM) inherently provides additional AMM for flowgates in series or parallel with NJD such as NOH, WOS, and WOM
- Real-Time flows on these flowgates (WOM, WOS, NOH) generally do not approach the TTC of these flowgates
- Other flowgates are more restrictive and limits reached prior to reaching limits on WOM, WOS, and NOH

AMM and Non Firm Impacts to ATC
A Visual Guide to Evolution
(Spring and Summer)

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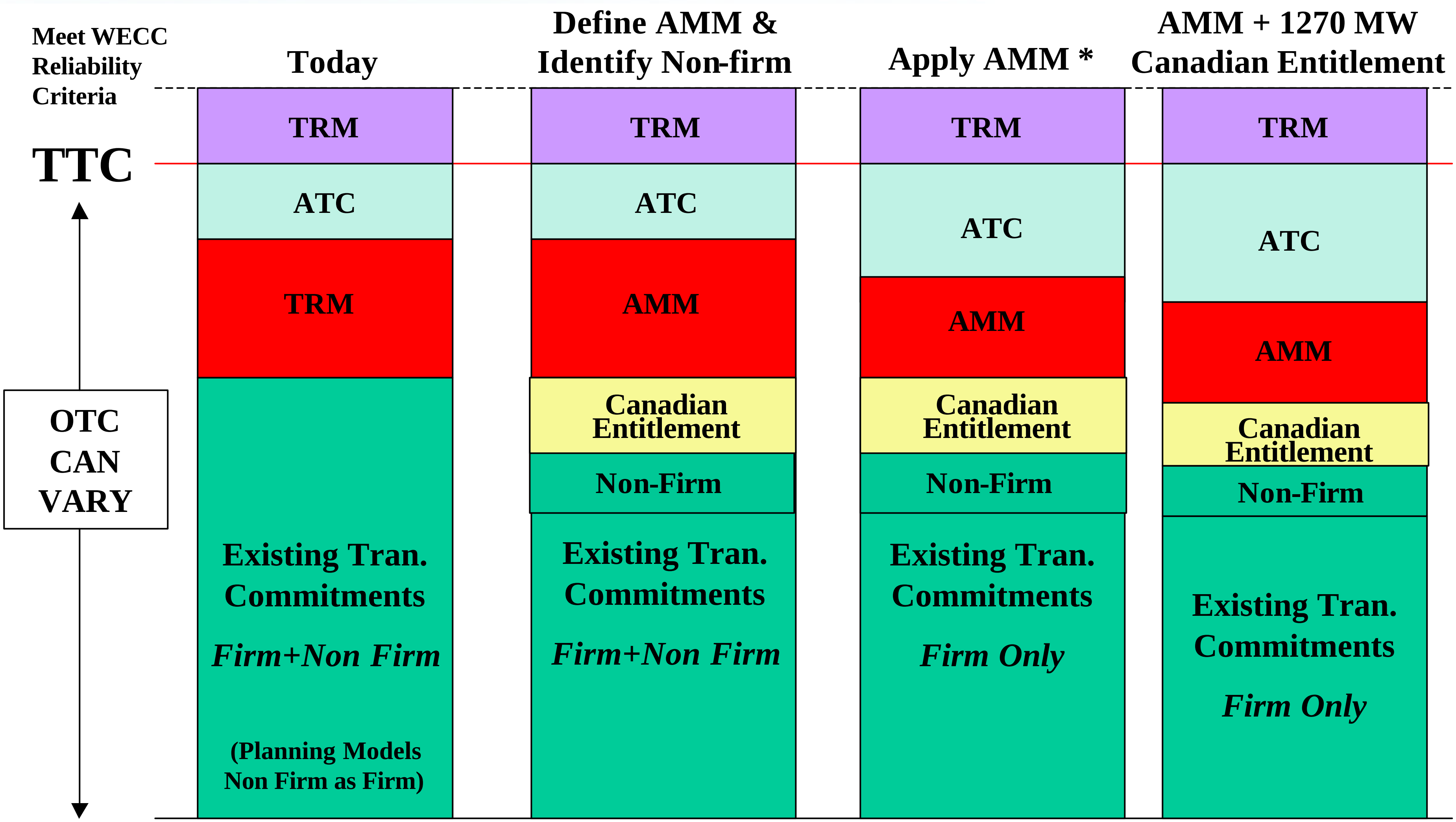

*AMM Reduction for Proposed Flowgates Only: WOM, WOS, and NOH

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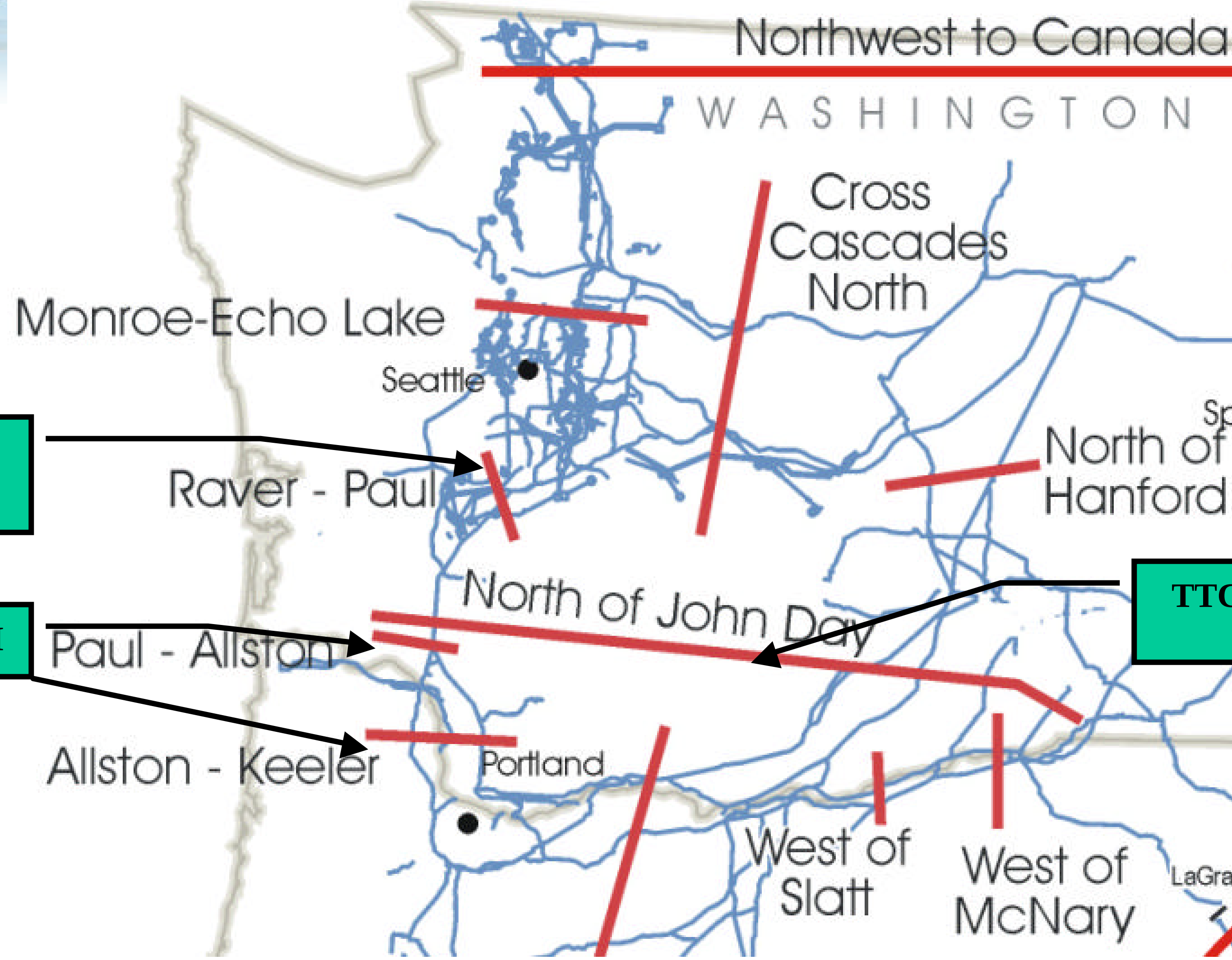
Modeling AMM on the Network



TTC - 300 MW

TTC - AMM

TTC - 200 MW - AMM

1. **AMM of 1 MW across NJD is equivalent to 40% across NOH, 15% across WOM, and 34% across WOS (approximately)**
2. **AMM along I-5 restricts sales across WOM/WOS/NOH**

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Customer Concerns and Comments

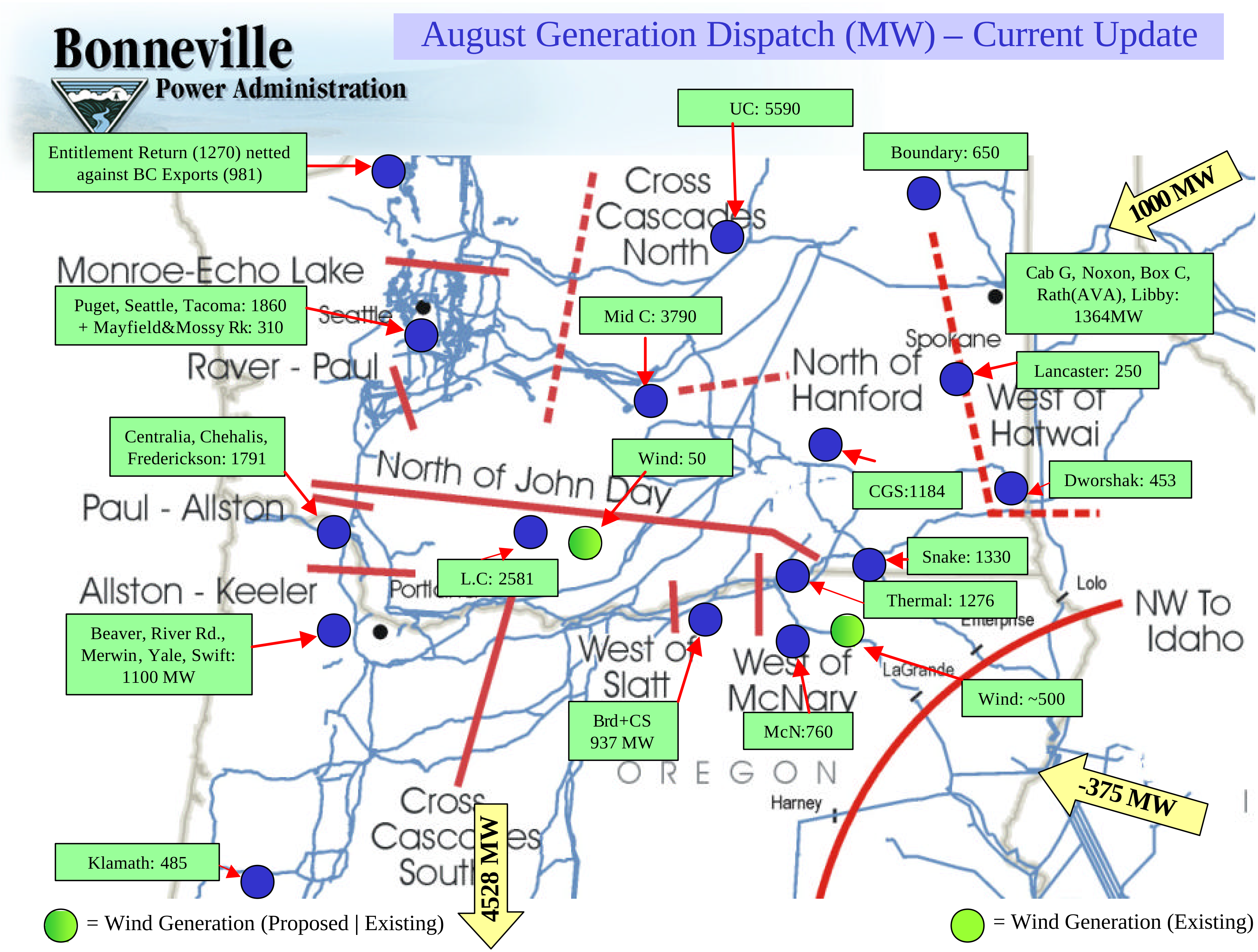
- **How much ATC will TBL gain by reducing AMM on these 3 flowgates?**
- **Will AMM shrink in the future?**

Response

- Cannot say for certain
- Tendency will be for AMM to increase because contract accounting flows tend to exceed planning flows
  - Increased sales should increase contract accounting flows more than planning flows (due to full netting in planning base case)
- AMM will be recalculated and evaluated with each annual/semi-annual base case update

Sensitivity Analyses

August Generation Dispatch (MW) – Current Update



= Wind Generation (Proposed | Existing)

= Wind Generation (Existing)

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Sensitivity Analyses

Conservatism in ATC Methodology

- Swing Intertie being COI/DC
- Non-Coincidental peak load
- 25% AMM + Other Fixed Quantity
- Non-Federal Generation: Greater of historical or firm
- Removing loop flow/cut case (contract accounting)
- Partial netting for all load service
- Limited diversity in contract accounting

Sensitivity Analyses

Load Growth

- Load increase "north" (primarily Seattle and Spokane) of the flowgates adds spring/summer ATC by "consuming" generation before it would cross the flowgates
- Load increase "south" (primarily Portland and southern Oregon) of the monitored flowgates will have minimal impacts to the ATC, since no new generation is modeled (other than NT load growth)
- Net effect:
  - Load growth would reduce the flows on the COI/PDCI
  - Minor shifts between NOH and the I-5 flowgates may occur
- Load decrease may have increased adverse affects on LT ATC
- The likelihood of a net load reduction is extremely low
- Critical assumption in the Planning ATC cases is the dispatch of generation

Sensitivity Analyses

DSI Load (Spring & Summer)

- **Intalco Load (Shut down)**
  - Reduced ATC for NOH (110 MW) and Monroe-Echolake (221 MW)
  - Risk Mitigation
    - NOH: Within AMM withheld and not the limiting flowgate
    - Monroe-Echolake: Redefine the flowgate
- **Wenatchee Load (Shut down)**
  - Minor reduction in ATC: All within margin held for flowgates

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Sensitivity Analyses

Generation (Spring & Summer)

- **Columbia Generating Station (shut down)**
  - Replacement power from other hydro projects (predominately from UC) results in 550 MW reduction in NOH ATC
  - Replacement power could come from open market purchases
  - Risk Mitigation
    - NOH is not limiting
    - COI/PDCI vs. NJD more limiting: Self correcting
- **Centralia (Both units shut down)**
  - Raver-Paul: Approximate 300 MW ATC impacts. Existing methodology calls for reserving 300 MW margin on Raver-Paul
  - Greater concern: Winter cross-cascade issues (not related to ATC change proposal)

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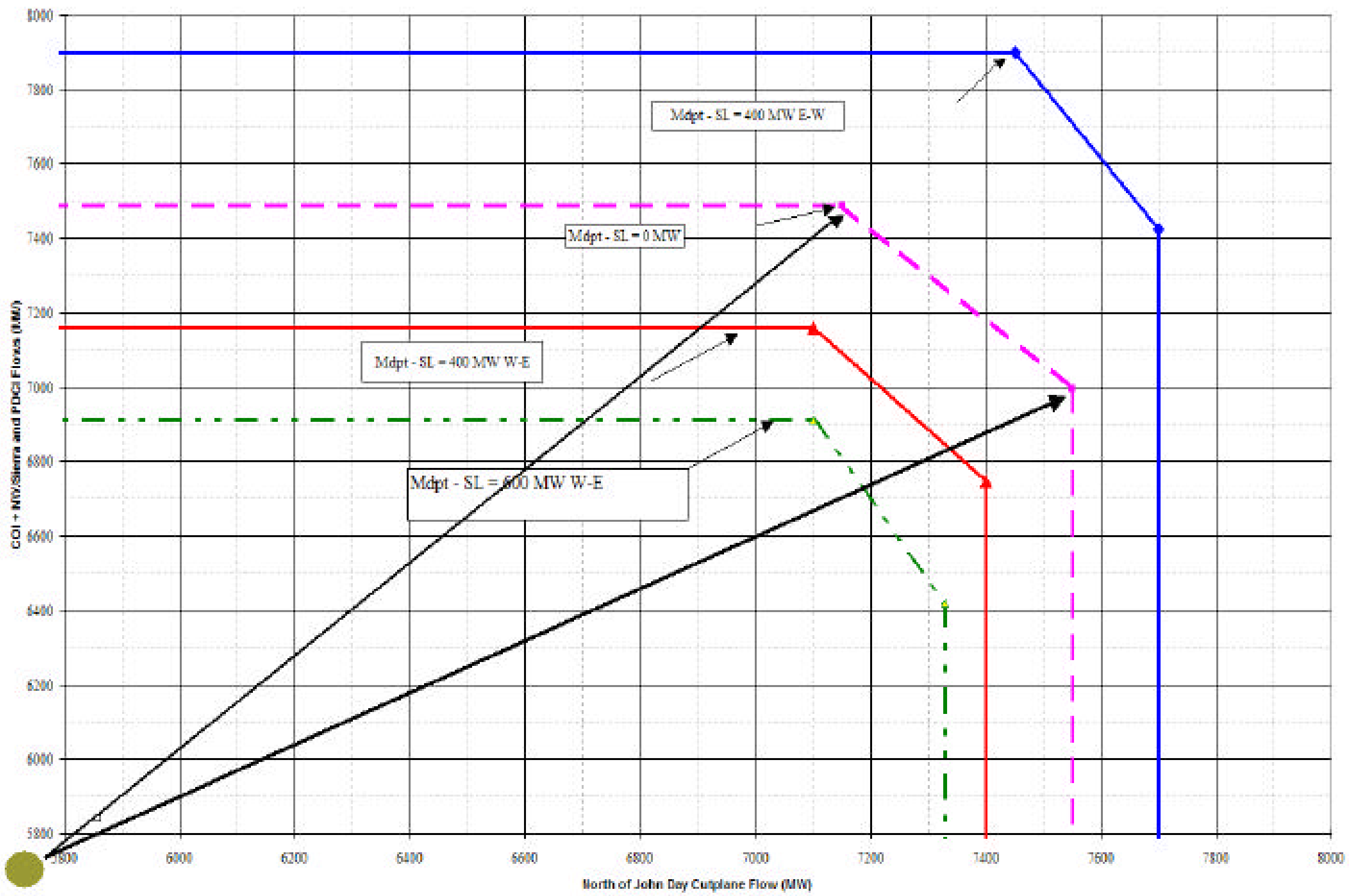
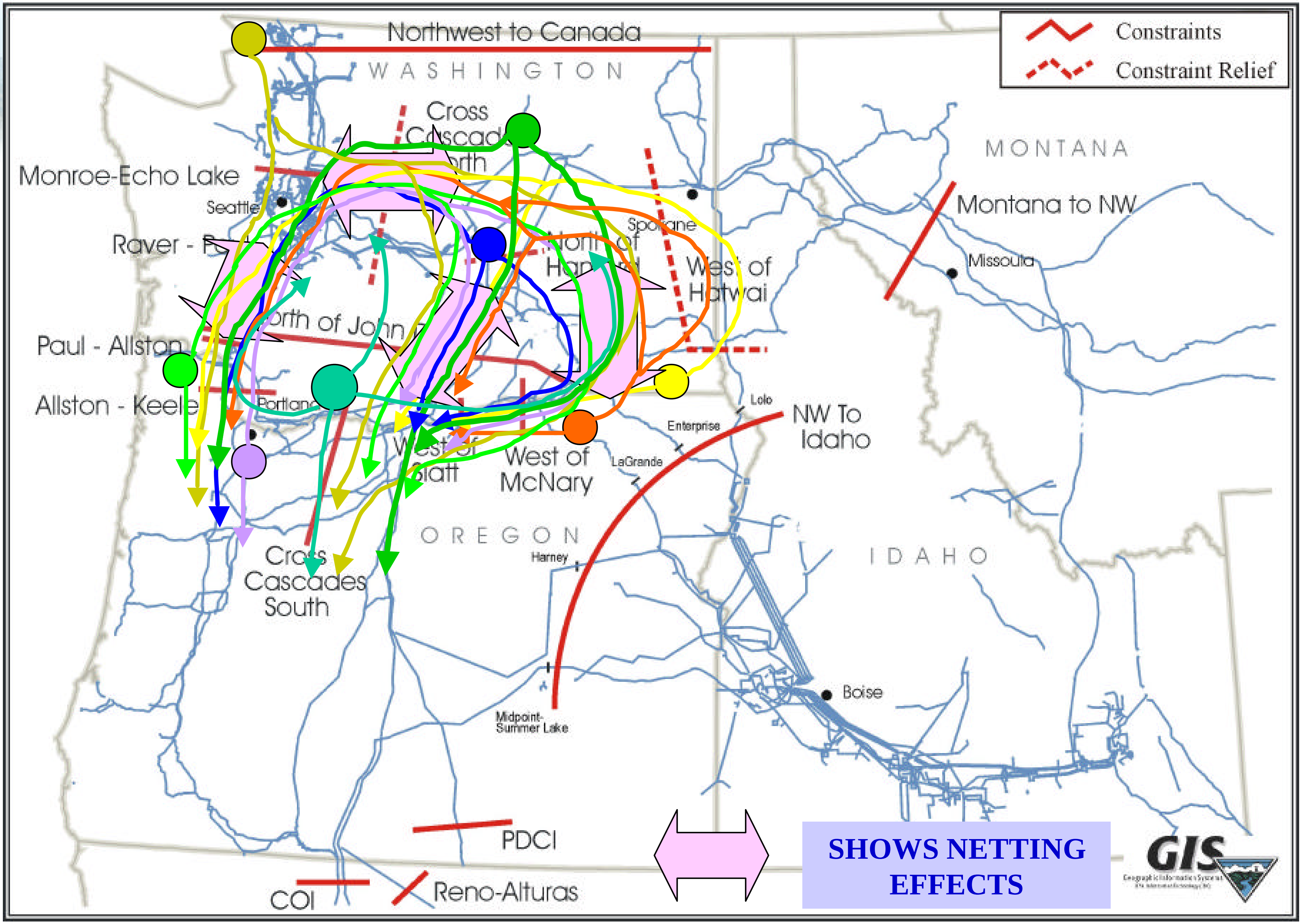
August Planning ATC Basecase relative to Nomogram North of John Day vs COI+NW/Sierra + PDCI 2005 Summer N-S



August Planning ATC
NJD vs. COI/PDCI Level



Constraints
Constraint Relief
Northwest to Canada
WASHINGTON
Monroe-Echo Lake
Seattle
Paul - Allston
Spokane
West of Hatwai
MONTANA
Montana to NW
Missoula
Lolo
Enterprise
LaGrande
NW To Idaho
West of McNary
OREGON
Harney
IDAHO
Cross Cascades South
Boise
Midpoint-Summer Lake
PDCI
COI
Reno-Alturas
SHOWS NETTING EFFECTS
GIS

Customer Concerns

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Customer Concerns and Comments

- **What is assumed NT redispatch frequency, duration, and cost?**
- **What are the historical levels of redispatch?**

Response:

- Limited information on historical redispatch requests
- No information substantiating cost associated with redispatch
- Efforts underway to improve collection of redispatch information
- Most recorded redispatches in 2002-2004 did not occur in HLH
- No indication additional firm contracts will increase the incidence of redispatch
- More explicit identification of non-firm schedules may reduce incidence of redispatch

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Customer Concerns and Comments

- **Could this proposal increase curtailments on the Intertie?**

RESPONSE

- – Under current network scheduling procedures (accept all schedules), additional contracts will not affect intertie curtailments
- – Additional generation (regardless of whether supported by firm transmission) will increase risk of curtailment under current procedures
- – Explicit identification of non-firm schedules could reduce intertie curtailments by moving curtailment from intertie firm to network non-firm schedules

Customer Concerns and Comments

- **How does the model deal with reserves and CBM?**

RESPONSE

- No margin is specifically held for delivery of operating reserves (WECC CBM)
- Not deemed necessary-adequate flexibility to deliver operating reserves
- Spring/summer outages are likely to occur behind the constraint and the outage creates ATC for dispatch of reserves
- WECC guidelines do not require CBM under conditions where netting of schedules is based on service to firm loads

Customer Concerns and Comments

- **Is there a sanity check being performed on the load levels for Non-NT loads?**

RESPONSE

- NT loads are deliberately over-forecast by approximately 1,000 MW (15%-20%) to provide additional margin
- Currently we do not critically evaluate non-NT load forecasts submitted to WECC
- This is an area for further investigation as we further refine the ATC methodology
    - Note: TBL determination/judgment of a utilities load forecast can be extremely controversial and contentious.
- We have no evidence that faulty load forecasts are compromising the integrity of our ATC modeling

Customer Concerns and Comments

- **Under the IR/FPT contracts, multiple PORs may have multiple PODs. Would you clarify this?**
- **What are the entities with POD (swing export) flexibility?**
- **Why are swing rights modeled at 500 MW in August and 900 MW in May and June?**

RESPONSE

- POD flexibility is available to certain legacy contracts on a firm basis
- ATC modeling does not define or even infer legacy contract rights
- ATC modeling reflects the assumption that the identified utilities will export surplus resources on a firm basis (firm use of network to intertie).
- Discussion's continue with these utilities. Current expectation is that swing export capacities will be about 200 MW higher in total than previously indicated

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Customer Concerns and Comments

- **Does BPA plan to sell ATC down to the planning limits?**
- **Does the Planning Method adequately account for generation variation, fish concerns, and NT load growth?**

RESPONSE

- BPA is prepared to sell to planning ATC limit, **less AMM**
- Certain flowgates will be limiting (summer I-5, WOM), others will not
- Planning ATC based upon conservative TTC
  - TRM withheld in establishing TTC
  - TTC accounts for certain level of system disturbances
  - OTC often exceeds TTC based on operating nomograms
- Contract path fiction used to establish “rights” but inaccurate predictor of flows
- Wide variety of dispatch accommodated without violating TTC
  - Flexibility is less as system approaches peak conditions
  - $170 million investment in Schultz-Wautoma significantly justified by increased flexibility to address fish concerns

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Customer Concerns and Comments

- **Does "Planning ATC" accommodate an adequate range of generation dispatches?**

RESPONSE

- Planning ATC is based on a single dispatch
- Generation dispatch flexibility is significantly preserved through AMM, TRM, peak hour planning, and other conservative assumptions in the methodology
- Dispatch flexibility involves a trade-off between costs and benefits
  - Constraint management systems provide cost and benefit signals (e.g., CAISO)
  - Signals are obscured on TBL system
- Dispatch sensitivities can provide information on system flexibility to accommodate alternative hydro dispatches

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Federal Dispatch Sensitivity
High Upper Columbia Generation

Medium High generation day (12,500/hr) with high upper river percentage (67% at GC/CJ/WNP)

			sensitivity May	sensitivity June	sensitivity July
		actual	scaled to 9450	scaled to 8315	scaled to 8903
8/30/1999	title	h13	% of Total	% of Total	% of Total
8/30/1999	BON NET GENERATION	307	276	243	260
8/30/1999	CHJ NET GENERATION	2168	1951	1716	1838
8/30/1999	GCL NET GENERATION	5324	4790	4215	4513
8/30/1999	IHR NET GENERATION	88	79	70	75
8/30/1999	JDA NET GENERATION	1115	1003	883	945
8/30/1999	LGS NET GENERATION	190	171	150	161
8/30/1999	LMN NET GENERATION	197	177	156	167
8/30/1999	LWG NET GENERATION	199	179	158	169
8/30/1999	MCN NET GENERATION	606	545	480	514
8/30/1999	TDA NET GENERATION	309	278	245	262
		10503	9450	8315	8903

Upper River/WNP2 as % of '	71%	(Base Case is 38%-42%)
Lower River as % of Total	16%	
McNary/Snakes as % of Tot.	12%	

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Federal Dispatch Sensitivity
High Upper Columbia Generation

August Federal Hydro Redispatch Sensitivity

Flowgate	TTC	Flows Before Redispatch (Base Case with Three Proposed Changes)	Flows After Federal Hydro Redispatch	Change in Flow Due to Redispatch (Loss of ATC)	Planning ATC After Redispatch (A-C)
	A	B	C	D	E
MONROE-ECHO LAKE	1,200	1,012	1,032	20	100
RAVER TO PAUL	1,750	892	1,003	112	688
PAUL TO ALLSTON	2,250	1,810	1,950	140	223
ALLSTON TO KEELER	1,740	1,273	1,392	119	311
NORTH OF HANFORD	4,100	2,274	2,836	562	982
NORTH OF JOHN DAY	7,700	5,817	6,526	709	1,191
WEST OF MCNARY	2,870	1,983	2,116	133	940
WEST OF SLATT	4,100	3,045	3,330	284	956

Customer Concerns and Comments

- **How do the processes fit together?**
  - **NT MOA**
  - **Commercial Redispatch**
  - **Constraint Management**
  - **Conditional Firm**

RESPONSE

- NT MOA establishes flowpath rights similar to PTP contract rights
- Conditional Firm and Commercial Redispatch are approaches to providing additional ATC firming what would otherwise be non-firm
  - Proposal to remove non-firm flows from ATC base case may reduce, defer or eliminate the need for these new products
- Constraint management is necessary to protect reliability and quality of firm service whether these proposed changes to the ATC methodology are adopted or not

Customer Concerns and Comments

- **Will we take how ever long necessary until customers:**
  - **Have a complete understanding of how the existing flexibility in our firm obligation / contracts are modeled? (PBL)**
  - **Thoroughly understand impacts? (PNGC)**
  - **Know historical levels of constraints and redispatch before selling any more ATC?**

Response

- We will take action soon
- Decisions on ATC will never be viewed as universally advantageous by all customers and competitors in the power market--consensus is not a realistic expectation
- TBL has a responsibility to provide transmission services in a nondiscriminatory manner with due regard for cost, efficiency, reliability, quality of service and diligent consideration and protection of customer contract rights
- The Administrator is directly involved with pending decisions on ATC methodology